

# Eclipse Plug-in Development Research Project

## Report 7

**UNIVERSITY AT BUFFALO**

August 14, 2015

Authored by: Chern Yee Chua

# Eclipse Plug-in Development Research Project

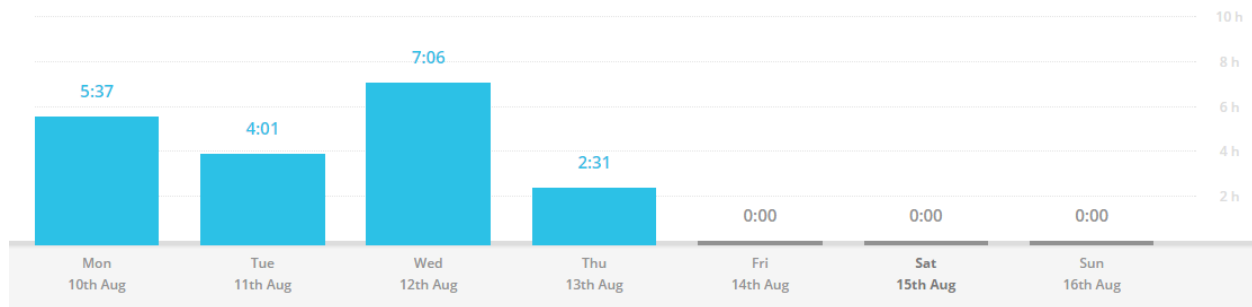
## Report 7

### Introduction

In this week, I am finally able to capture all the changes inside the java editor and also get the comment line and block working.

### Synopsis

I spend more than 15 hours on this project this week. (I will shift the 5 hours from 8/9/2015 of meeting 6 and the other 5 hours from 8/10/2015 of this week to the week 7/30/2015 - 8/5/2015)



Eclipse Plugin	19:15:00
BlockComment and LineComment	2:31:00
Finding ways to get difference between two AST nodes	5:37:00
Finishing up the plugin by all means	7:06:00
Using eclipse API to get differences between AST nodes	4:01:00

## Content and Walkthrough

Throwing away the traditional way of visiting nodes by nodes, I decided to go with *brute-force* method this time. I have been researching on how to use eclipse API to get the difference between two AST nodes, yet still haven't gotten a possible and feasible way of doing it. Hence, I went with *brute-force* - I get two consecutive AST nodes and then compare them using external library that returns the ADDED or REMOVED changes of CompilationUnit.

```
package issacpackage;

public class IssacClass {
    int a;
    int b;
    int c;
    int d;

    public void method() {
    }
}
```

Snapshot below above is the initial java file. Snapshot below is the initial console output.

```
-----Listener Initialization-----
2015.08.13 at 01:14:31 EDT
package issacpackage;
public class IssacClass {
    int a;
    int b;
    int c;
    public void method(){
    }
}
```

So let me do some modification on the source file.

```
package issacpackage;

public class IssacClass {
    int a;
    int b;
    int c;
    int d;

    public void method() {
        int a;
        int b;
        int c;

        for (int x = 0 ; x < 2 ; x++){

        }
    }
}
```

The result is shown at the console output below.

```
Diff(INSERT,"int d;\n ")
Diff(INSERT,"  int a;\n    int b;\n    int c;\n ")
Diff(INSERT,"  for (int x=0; x < 2; x++) {\n    }\n ")
```

So what if I remove something and add something back? Let's see what happens then.

```
package issacpackage;

public class IssacClass {
    int a;
    int b;
    int c;
    int d;

    public void method(){

        for (int x = 0 ; x < 2 ; x++){
            x = x + 2;
        }

    }
}
```

```
Diff(DELETE,"int a;\n    int b;\n    int c;\n ")
Diff(DELETE,"  for (int x=0; x < 2; x++) {\n    }\n ")
Diff(INSERT,"  for (int x=0; x < 2; x++) {\n    x=x + 2;\n    }\n ")
```

It is not very pretty in some sense but it does get the job done, right? The reason why I didn't get the line number is that AST node doesn't recognize space and next line, but here's the trick. Since those non-CompilationUnit element such as spacing, some random strings, comment lines and etc. are not part of the AST node, no action needs to be taken unless the user writes something that has to do with the AST to the CompilationUnit (aka the java file).

## Conclusion

I wonder if Professor Alphonse and Professor Ramamurthy would like this solution. In the meantime, I will also try to polish the output and modify the code to make it better. Any suggestion and recommendation are mostly welcome. Thanks in advance!